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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,243	01/23/2004	Takemori Takayama	KOM-0153/INO/DIV 2	4520
23353	7590	05/17/2005	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			SAVAGE, JASON L	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,243

Applicant(s)

TAKAYAMA ET AL.

Examiner

Jason L. Savage

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6 and 8-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 6 and 8-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/193,625.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01232004</u> . | 6) <input type="checkbox"/> Other: ____. |

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Claim Objections

Claims 14 and 19 are objected to because of the following informalities: In line 3 of claim 14 and line 4 of claim 19, Applicant states consisting of "An", it is the position of the Examiner that Applicant intended to state Zn. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama'121 (US 6,613,121).

Takayama'121 teaches a copper based sintered contact material (col. 1, ln. 5-17). Takayama'121 further teaches that the contact material may comprise an intermetallic compound comprising 12% of Cu and Sn by weight (col. 29, Table 6, Nos. PB7-10). Although Takayama'121 teaches weight percent as opposed to volume percent which is claimed by Applicant, it is the position of the Examiner that given the contact materials contain similar materials, percentages given in weight percent would be roughly equivalent to percentages given in volume percent. Regarding the fact that Takayama'121 teaches the CuSn intermetallic is added in roughly 12 volume % whereas the claim recites a volume

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percent of 10% or less, absent a teaching of the criticality of the intermetallic content being limited to 10% or less, it does not provide a patentable distinction over the prior art since it would have been within the level of one of ordinary skill in the art to have adjusted the relative amounts of the intermetallic materials to be greater or less than the 12 % recited in the reference with a reasonable expectation of success of producing a contact exhibiting good hardness as well as good anti-seizure properties. The relative amount of intermetallic used would depend on intended application in which the contact material was to be used (col. 9, ln. 42-64).

Furthermore, although Takayama'121 is silent as to whether the contact material contains intermetallic compounds formed from the claimed materials other than the CuSn intermetallic recited above, it does teach a contact material comprising Sn and Mn (col. 17, Table 2, Nos. 41 and 42). These two materials are listed as being capable of forming intermetallics by Applicant; therefore, the cited examples of Takayama'121 would meet the claim limitations as being a contact which comprises an intermetallic of Sn and Mn volume % of 6 in example number 41 and 9 in example number 42.

Regarding claims 8-10, Takayama'121 teaches a wide variety of particles which may be added to the contact to provide enhanced sintering and/or seizure prevention including non-metallic particles such as ceramics and carbides (col. 11, ln. 37-53), metal and alloys particles including those selected from Mo, W, Cr, Co, and Fe (col. 8, ln. 20-29) and other materials including MnS and graphite (col. 8, ln. 26).

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Regarding the limitations that the materials are added within the specific amounts claimed in claims 8-10, absent a teaching of the criticality of the claimed amounts of materials, it would not provide a patentable distinction over the prior art. It would have been within the level of one of ordinary skill in the art to have determined what loading amounts of material would provide the contact material with suitable sintering and/or seizure prevention properties.

Regarding claim 11, Takayama'121 is silent as the particle size of the MnS and graphite particles, however, it teaches particle sizes of other materials as being 300 meshes or less (col. 14, ln. 40-41). It would have been obvious to one of ordinary skill in the art to have used a similar particle size for any of the other materials added to the contact since Takayama'121 is silent as to the particle sizes which are suitable for use for the other materials.

Regarding claim 12, Takayama'121 teaches that the Sn content may be between 1-12 wt% and Pb content is zero which would meet the claim limitation (col. 30, ln. 51-61).

Regarding claim 13, Takayama'121 teaches that the Sn content may be 12 wt% (col. 30, ln. 51-61) and further states that a precipitated Cu-Sn compound phase may be dispersed in the contact (col. 39, Table 6, Nos. PB7-PB10).

Regarding claim 14, Takayama'121 teaches that other alloy elements may be contained in the contact including Pb, Zn, Mn, Be, Mg and Ag (col. 31, ln. 12-15) and may also contain solid lubricants as well (col. 8, ln. 24-29). Regarding the specific solid lubricants recited by Applicant in the claim, they are materials which are conventionally used as solid lubricants. It would have been obvious to

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one of ordinary skill in the art to have used any known or conventional solid lubricant material in the contact of Takayama'121 with a reasonable expectation of success of reducing the amount of seizure exhibited by the contact material.

Regarding claim 15, Takayama'121 teaches that applying copper based sintered contacts to iron based backings are well known (col. 1, ln. 35-41). Therefore, it would have been obvious to have selected iron as the backing material for the copper based contact since it is a conventional material used as a backing. The sintered contact on the iron backing would meet the limitation of being a double layered sintered contact member.

Regarding claim 16, Takayama'121 teaches that the contact may further comprise Ti or Si in an amount of 1wt% for each element (col. 17, Table 2, Nos. 36-37).

Regarding claim 17, Takayama'121 teaches that the contact may contain any of Si, Al, Ti and Cr (col. 8, ln. 13-23). The cited elements would be just as capable of expanding a sintered layer as those elements claimed by Applicant. Takayama'121 also teaches a wide variety of non-metallic particles (col. 8, ln. 26-29) which would also exhibit a similar restraint to shrinkage as the non-metallic particles claimed by Applicant. Takayama'121 further teaches that the contact is sintered.

Regarding the limitation in claim 17 that the contact is subjected to two sinter bonding steps to join the contact material to the steel backing, Takayama'121 teaches subjecting the contact material to a first sintering step at

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a temperature of 800°C or more and subsequently resintering the contact material after it has had the density mechanically increased (col. 10, ln. 1-14).

Regarding claim 18, Takayama'121 teaches the addition of Sn as primary powder (col. 29, Table 6, Nos. PB1-PB10).

Regarding claim 19, although Takayama'121 does not exemplify an embodiment which contains all of the elements claimed in the amounts in which they are claimed, it does teach the addition of Sn in an amount of 12 wt% (col. 30, ln. 51-55), the addition of a Cu-Sn compound phase (col. 29, Table 6, Nos. PB1-PB10), the addition of the alloy elements claimed by Applicant (col. 8, ln. 13-23) as well as solid lubricants (col. 8, ln. 24-29). It would have been obvious to one of ordinary skill in the art to have included any or all of the elements recited by Takayama'121 with a reasonable expectation of success since Takayama'121 teaches that any or all of the materials may be used to form the contact material layer.

Prior Art Made of Record but not Relied Upon

The following is a list of prior art which was made of record but not relied upon for the rejections listed above:

Asada'617 (US 5,303,617) teaches a copper based sintered contact material which comprises .1-15% Sn, 1-10% Pb and .1-30% of a hard material which may comprise metal elements, intermetallics, non-metallic particles including carbides, nitrides, and oxides (col. 2, ln. 1-24). Asada'617 further teaches embodiments containing two or more elements which are claimed by

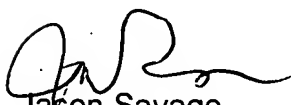
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Applicant as being intermetallic forming compounds (Table 2, Nos. 31, 38 and 39) .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jason Savage
5-13-05


DEBORAH JONES
SUPERVISORY PATENT EXAMINER